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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/967,009	09/28/2001	Ashok N. Rudrapatna	21-1	5654

46290 7590 01/27/2005

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EXAMINER

BAKER, STEPHEN M

ART UNIT PAPER NUMBER

2133

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/967,009

Applicant(s)

RUDRAPATNA ET AL.

Examiner

Stephen M. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

In [0035]: "error correction step (12)" apparently should be "error detection step (12)"; "the step of is error detection" apparently should be "the step of error detection".

In [0038]: "If, on the other *hands*, a NACK is sent, the failed error coded *streams* are processed" is unclear.

In [0040]: "streams comprises a Chase protocol" apparently should be "streams comprises a Chase protocol packet(s)".

Despite the presence of feedback connections shown from the channel decoders (CRC decoders and/or Chase/IR combining decoders) to the MIMO decoders in Figs. 3 and 4, there is no definite disclosure of any interaction between channel coding/decoding and MIMO coding/decoding, and consequently no explanation of how the shown feedback connections would be used, and instead the MIMO layer functions appear to be completely transparent to the "error" (channel control coding) layer functions. The disclosure does not address the treatment of mixed "confirmations" for the streams.

Drawings

2. The drawings are objected to because the flowcharts in Figures 1 and 2 appear to be incorrect and incompatible with the architectures shown in Figs 3 and 4.

Corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The flowcharts of Figures 1 and 2 do not appear to be serious attempts at representing a system with a HARQ coding advantage or at matching the architectures of Figs. 3 or 4. With respect to the HARQ encoder/transmitter flowchart of Fig. 1, a multiple confirmation embodiment (multiple CRCs per block) is not addressed at all, including the case of mixed confirmations, and so the flowchart is considered germane only to the architecture of Fig. 3 wherein there is only one CRC per block. There is, incorrectly, no apparent exit from the routine, and the decision "ACK" at step 40 apparently should exit the routine for the block. Steps 50 and 60 apparently should be removed, and "NACK" at step 40 apparently should couple directly to step 70, instead. "Forming" in step 70 apparently should be "Mapping", as "forming" is presumably completed in step 20, consistent with the architecture of Fig. 3 and the written disclosure [0044]. With respect to the HARQ receiver/decoder flowchart of Fig. 2, a multiple confirmation embodiment is not addressed adequately (mixed confirmations are not addressed), and so the flowchart is considered germane only to the architecture of Fig. 3 wherein there is only one CRC per block. The CRC decoding and HARQ decoding sub-processes are apparently depicted in reverse order to that required by the receiver architectures in Figs. 3 and 4. There is no step clearly assigned to packet combining for Chase and/or IR decoding. There is, incorrectly, no apparent exit from the routine.

Claim Objections

3. Claims 1-3 and 9-21 are objected to because of the following informalities: "error coded" is misdescriptive, non-standard terminology, and apparently should be "error control coded", or the like. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 18-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 18: the claim is incomprehensible as amended.

Regarding claim 20: the claim is incomprehensible as amended.

Claim Rejections - 35 USC § 102

6. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Pub. No. 2003/0072285 to Onggosanusi *et al* (hereafter Onggosanusi).

Onggosanusi discloses a hybrid ARQ system with Chase packet decoding or Incremental Redundancy sub-packet decoding, and a plurality of transmission antennas, the a plurality of antennas sending a plurality of "streams" for the next block "sub-packet" or "packet" as an "error coded stream" in response to a "confirmation

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message" (ACK) of a preceding block. Spreading units (108) form transmission streams separately, and the transmission streams so formed are "error coded" streams.

7. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,657,325 to Lou *et al* (hereafter Lou).

Lou discloses a hybrid ARQ system with Incremental Redundancy sub-packet coding (col. 2, line 55) and a plurality of transmission antennas (Fig. 4), each antenna carrying a separate copy of the next block "sub-packet" as an "error coded stream" in response to a "confirmation message" (ACK) of a preceding block. Spreading units (70) form transmission streams separately, and the transmission streams so formed are "error coded" streams.

8. Claims 1, 3-11 and 13-21 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,101,168 to Chen *et al* (hereafter Chen).

Chen discloses a hybrid ARQ system with Chase packet decoding or Incremental Redundancy sub-packet decoding, and a plurality of transmission channels, the plurality of channels carrying a plurality of "streams" for the next block "sub-packet" or "packet" as an "error coded stream" in response to a "confirmation message" (ACK) of a preceding block. A next packet can be transmitted on one channel at the same time as a previous packet is transmitted on another channel, and each packet is independently error-checked by a CRC. Spreading units (432, 434) form transmission streams separately, and the transmission streams so formed are "error coded" streams.

9. Claims 1, 3, 4, 7, 8 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,983,384 to Ross (hereafter "Ross").

Ross discloses separately forming two "error coded streams" respectively at the outputs of encoder-1 (14) and encoder-2 (16) in a HARQ system based on "incremental redundancy".

Claim Rejections - 35 USC § 103

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen.

Chen does not disclose multiple receiving antennas. Official notice is given that the reliability advantage obtainable by using multiple receiving antennas was well known at the time the invention was made. It would have been obvious to a person having ordinary skill in the art to modify Chen's system by using multiple receiving antennas. Such a modification would have been obvious because the reliability advantage obtainable by using multiple receiving antennas was already well known.

Response to Arguments

11. Applicant's arguments filed 1 September 2004 have been fully considered but they are not persuasive.

Regarding the responses to the rejections made under 35 USC 102, rather than respond to applicant's apparent assertion that block data must "separately undergo channel encoding and modulation ... and ... (being) formulated in a particular packet type" to meet a recitation of "forming separately at least two error coded streams from the block" by pointing out that the recitation would thereby be vague for such purpose under 35 USC 112, 2nd paragraph, the examiner has explained above where the applied

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references perform the step of "forming separately at least two error coded streams" from the block. Furthermore, there is no recitation in the claims that the block data does not already include error (control) coding. Nonetheless, new rejections have been added to reflect the intended scope of the claims argued by applicant.

Regarding the response to the rejection made under 35 USC 103, the examiner disagrees with the notion that some additional motivation beyond a desire for increased reliability would be required to provide sufficient motivation to replace a single antenna with multiple antennas, and applicant has presented no basis for the notion. It is noted applicant has expressed no disagreement with examiner's observation made by Official Notice.

The response to the drawing objections is largely incomplete.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker
Primary Examiner
Art Unit 2133

smb